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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,811	02/05/2007	Tomohiro Saito	60303.57/ho	7061

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EXAMINER
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BOWMAN, MARY ELLEN

ART UNIT	PAPER NUMBER
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2879

NOTIFICATION DATE	DELIVERY MODE
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04/16/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@kbiplaw.com  
jkeating@kbiplaw.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/595,811	<b>Applicant(s)</b> SAITO ET AL.	
	<b>Examiner</b> MARY ELLEN BOWMAN	<b>Art Unit</b> 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 16-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/12/06, 5/25/06</u> | 6) <input type="checkbox"/> Other: _____  |

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## DETAILED ACTION

### *Priority*

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Information Disclosure Statement*

The information disclosure statements (IDS) submitted on May 12, 2006 and May 25, 2006 were considered by the examiner.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

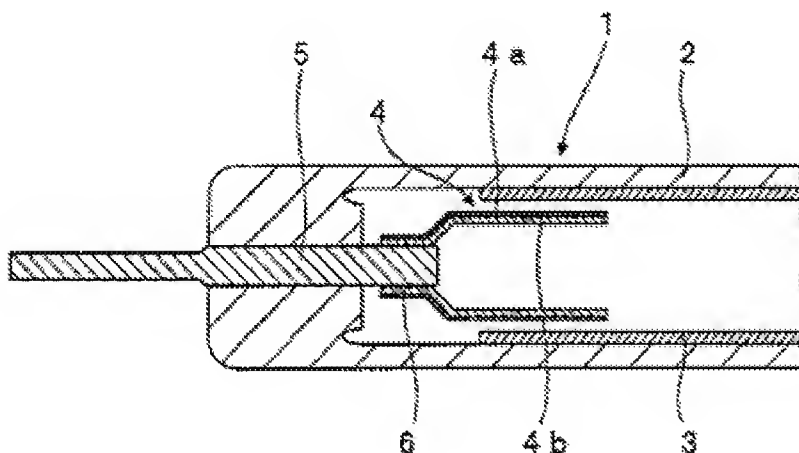
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita et al., USP App. Pub. No. 2002/0140353 A1, published October 3, 2002 (hereinafter referred to as "Yamashita") in view of Thielen, USPN 6,417,607 B1, published July 9, 2002 (hereinafter referred to as "Thielen").

**Regarding claims 16-19 and 27-31, Yamashita (Figure 2 below) teaches a discharge electrode (4) comprising a unitary press-formed body made of a discharge electrode clad material comprising: a base layer comprised of pure Ni or Ni-based alloy mainly comprising Ni (4a, [0076]); and a surface layer bonded to the base layer and composed of pure Nb or a Nb-based alloy mainly including Nb (4b, [0076]). Yamashita further teaches the electrode has a tubular portion having an open end (4); and an end plate portion that is**

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**integral with the tubular portion to close the other end of the tubular portion (6), wherein inner surfaces of the tubular portion and the end plate portion are defined by a surface layer of the clad material** (see Figure below). Yamashita fails to teach a middle stainless steel layer.



In the same field of endeavor of discharge electrodes, Thielen teaches **an intermediate layer bonded to the base layer and composed of a ferrous material that is stainless steel** (col 3, lines 10-12; Note: Stainless steel is a well known equivalent material to iron, see for example, Matsumoto et al., USPN 5,962,977A, published October 5, 1999, col 3, lines 42-47). Thielen further teaches that the use of iron as a middle layer serves as a support layer for the upper and lower electrode materials (col 2, lines 63-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a stainless steel middle layer in the discharge electrode in order to provide a more well formed and hard shape to the electrode.

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Note: The combined teaching of Yamashita and Thielen further makes obvious to one of ordinary skill in the art **the surface layer having a thickness of not smaller than about 20  $\mu\text{m}$  and not greater than about 100  $\mu\text{m}$  and the surface layer has a thickness which is not greater than about 70% of a total thickness of the base layer, the intermediate layer and the surface layer** ([0061] of Yamashita; Note: The thickness of the electrode is 400  $\mu\text{m}$ . In light of the combined teaching that the middle layer of stainless steel is the support layer and the nickel and niobium layers are the thinner outer layers, it would have been obvious to one of ordinary skill in the art that the surface layer would have a thickness less than 100  $\mu\text{m}$ , based on the total electrode thickness taught by Yamashita. Further, it would have been obvious that the surface layer has a thickness less than 70% of the total thickness, based on the teaching that the stainless steel middle layer is the thick support layer).

**Regarding claims 20-23**, Yamashita and Thielen teach the inventions as explained above regarding claims 16-19 respectively, and Yamashita further teaches that the outer layer and inner layer are not limited to nickel and niobium, but that as long as the outer metal or metal alloy has a larger work function than the inner metal or metal alloy, the desired effect will be achieved ([0039 and 0041]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a nickel alloy with not less than 1% niobium as the base layer of the electrode in the Yamashita display, in light of the disclosure of the invention, because as long as the work function of the base layer is larger than the inner layer, any suitable electrode metals will work for both layers. One may choose to use an alloy of nickel as the base layer as opposed to pure nickels for well known reasons in the art such as cost and ease of manufacture.

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**Regarding claims 24, 25 and 26, Yamashita and Thielen teach the inventions as explained above regarding claims 16, 17 and 18 respectively, and Thielen further teaches **the intermediate layer has a strip-like shape, and the base layer and the surface layer respectively include at least one elongated base layer and at least one elongated surface layer bonded onto portions of the intermediate layer between widthwise opposite edge portions of the intermediate layer as extending longitudinally of the intermediate layer**** (Figure 1 below).

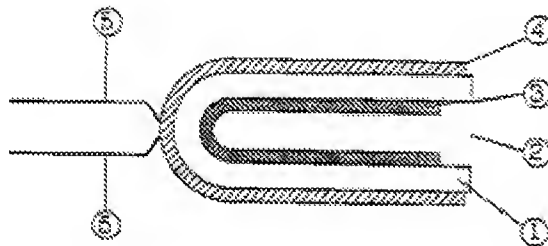


Fig. 1

It would have been obvious to combine the references for the same reasons as explained above.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARY ELLEN BOWMAN whose telephone number is (571) 270-5383. The examiner can normally be reached on Monday-Thursday, 7:30 a.m.-6:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. B./

Examiner, Art Unit 2879

/Sikha Roy/

Primary Examiner, Art Unit 2879